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RESEARCH REPORT

HEADLESS HORSEMEN OR RODIN'S RIDERS--WHICH WILL
LEAD THE MILITARY OF THE FUTURE?

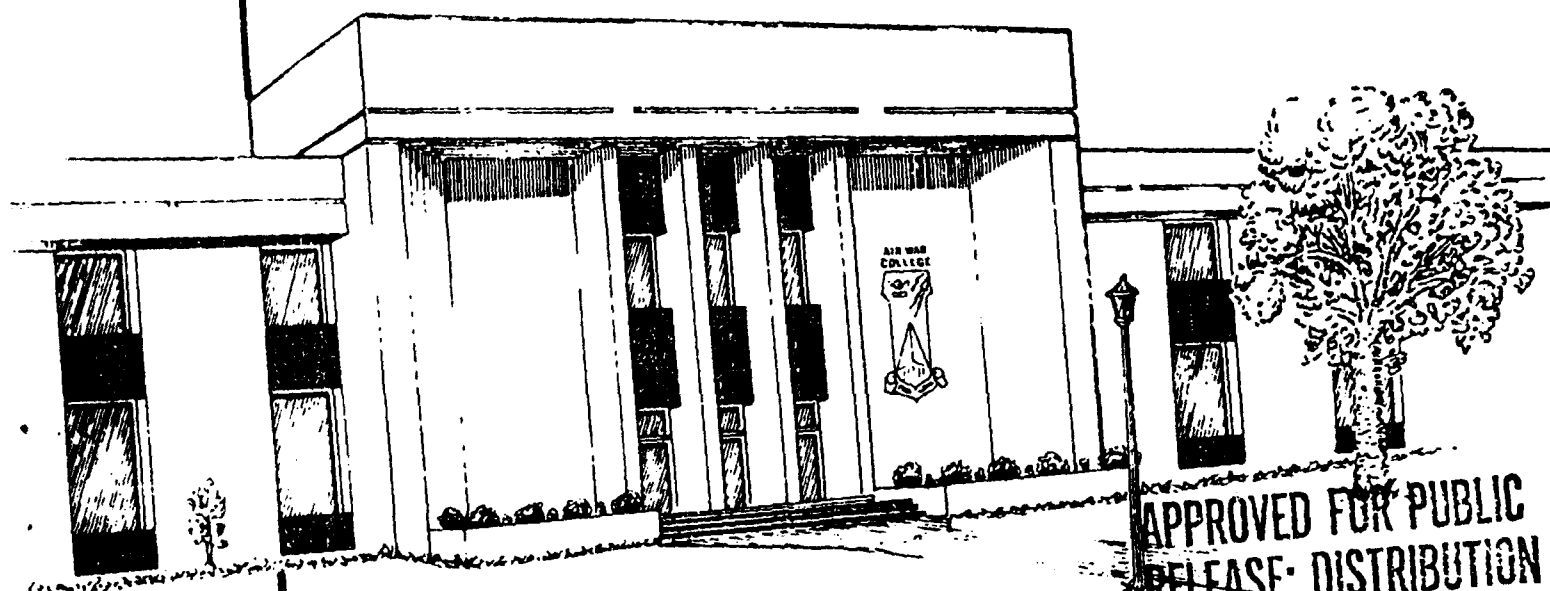
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LIEUTENANT COLONEL PAUL T. SHOROCK

1991



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UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

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HEADLESS HORSEMEN OR RODIN'S RIDERS:
WHICH WILL LEAD THE MILITARY OF THE FUTURE?

by

Paul T. Shorock, 135-42-0074FR
Lt Col, USAF

Maxwell Air Force Base, Alabama

Advisor: David G. Blair, Ph. D.

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AN ARTICLE SUBMITTED FOR PUBLICATION

MAY 1991

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Military thinkers have strong pressures on them to consistently be right. These pressures stem from the nature of war itself. Lives are at risk. National treasure can quickly be consumed. Conflicts can escalate through miscalculations. The pressure to maintain an unrealistically high "batting average"--to always be right--often restricts the ability to generate alternative courses of action appropriate risks. The result is a conservative incremental approach to working issues.

B. H. Liddell Hart cautioned against such an approach because, "It fosters a cult of soundness, rather than of surprise. It breeds commanders who are so intent not to do anything wrong, according to 'the book,' that they forget the necessity of making the enemy do something wrong. The result is their plans have no result." (36:35) The military has a continuing need for quality thinkers; but the types of thinkers it needs are becoming increasingly short in supply.

Past American military successes are often attributed to well-thought-out strategies, but other factors may have been at work. Sometimes the enemy's intentions were known because of high-quality intelligence (Enigma cipher material or Japanese naval codes). At other times, allies fought and held the enemy until the sheer force of America's overwhelming industrial capacity could be brought to bear. Would the outcome have been the same had American brainpower been the prime weapon?

The dynamics of a changing world order may preclude the success of such strategies in the future. The United States military establishment will be reduced, and technological

advances will place more lethal weapons in the hands of lesser powers' military forces as well as terrorists. Some conflicts may take place in front of a probing, global media. The military forces of the United States will perform in fundamentally different roles, such as drug interdiction. The challenges of the future will make additional demands on military thinkers.

History shows that the military thinking of many nations had flaws. During World War I, Germany decided to conduct unlimited submarine warfare. The planners' review was limited to military ramifications. How would shortages from reduced shipping affect England? The political aspects, such as what the American response would be, were not considered. These factors that were only predictions were later assumed to be facts for a subsequent estimate. (34:28-9,42-9) In World War II, the debate in the high command of Japanese military about the merits of attacking the United States Navy gave way to debate about the timing for the attack. (34:2-5) (53:29-33) Prior to World War II, American planners assumed that bomber formations could defend themselves against enemy fighters. (41:12) Initial daylight bombing sorties seemed to validate the assumption. In short order, bomber losses rapidly accumulated. Is it only with hindsight that such errors can be detected? Or were there indicators to prevent them?

Below the strategic level of the previous examples, there is a need for tactical thinkers. The strategic mistakes were lessons of life and made history books. But logic and "war stories" suggest that countless smaller lapses of thinking occurred. These happened mostly at the tactical level and have

been left unexamined for numerous reasons: no survivors, the small numbers involved, embarrassment to the survivors or additional pain to victims' relatives. What ever the reason, tactical thinking can also be improved.

The dynamics of a multipolar world will require new strategies and tactics. Future problems will be handled by forces reduced in size and also comprised of junior, less experienced, service members. They will be required to make split second decisions. Will the military thinkers be sufficiently prepared to face these tasks? Hartmann and Wendzel's Defending America's Security recognizes the need and suggests a product of military reform should be ". . . a growing appreciation for the importance of clear thinking and conceptualization." (62) And unless the country is willing to acquire these skills through costly trial and error, clear thinkers must be developed via our education system.

The American education system should serve many purposes. Thomas Jefferson said that, "diffusion of knowledge is the best foundation for public liberty" (61:105); he considered it to be one of the best protections against tyranny that could be made. The education system also prepares citizens to function productively in society and the job market. (6:145-58) "Citizens know intuitively what some of the best economists have shown in their research, that education is one of the chief engines of a society's material well-being. They know, too, that education is the common bond of a pluralistic society and helps tie us to other cultures around the globe." (42:17) Unfortunately, the

education system is not preparing its citizens.

Recently, and in growing measure, American education is getting failing grades. John E. Chubb of the Brookings Institute indicated, "United States educational policy over the past three decades has been a massive experiment that has tested whether spending more money . . . will result in better educated students. The results are in. The experiment has failed."

(60:72) Between 1982 and 1984, numerous reports identified the need for various educational reforms. While there is consensus for reform among a wide variety of factions, liberals and conservatives, secular and religious groups, their differences are about causes of the problem and methods to correct them. The volume of people not being educated to meet society's needs should be cause for concern. Even if corrective actions began immediately, estimates are it could take two generations to resolve. (7:63) This fact suggests that there are more repercussions to be felt. The education shortfall has significant economic ramifications.

Today, adult illiteracy costs the United States 225 billion dollars a year in lost industrial productivity, unrealized tax revenues, welfare, crime, prisons, and related social problems. (7:316) Each year, companies spend 210 billion dollars teaching subjects employees should have learned in school. The amount is significant because it is 30 billion dollars more than is annually spent on education. (8:82) In some cases, companies hire people knowing remedial training is required. Employers cite their biggest need as people who can think. (49:22-6) If

conditions do not change, there will be insufficient workers to fill tomorrow's jobs--insufficient in numbers and basic knowledge (8:82)

Americans are beginning to recognize the problem. The subjects getting the most attention now are the sciences and mathematics. The concern is understandable, given our dependence on technology to maintain our competitive edge. The transition of the United States from the world leader in many fields to one among many leaders shows the direction the country is headed.

How does the United States compare with other countries? When team of American 12th graders (made up of 95 percentile students) competed in an international test of mathematics achievement the results were dismal. They ranked 14th out of 15 nations in advanced algebra--just behind Hungary and slightly ahead of Thailand. (7:47) Most Japanese high-school graduates know more mathematics than the average American college degree holder. "Japanese companies setting up plants in the United States have found it takes an American with a master's degree to learn the same statistical quality-control techniques routinely used by Japanese high-school graduates." (8:6,7) While the sciences and mathematics certainly need our attention, solely focusing efforts in these areas will just delay the demise of our leadership because they are not really the problem, only symptoms.

The nontechnical symptoms of our failing educational system are highlighted by a unique observer. Though we normally think of Steve Allen as a comedian and entertainer, he has made

numerous scholarly contributions. Most recently his book Dumbth: And 81 Ways to Make Americans Smarter shares observations with us about service sector people he has encountered who were inadequately prepared to do their job. He points to decreases in efficiencies (how people do their jobs) as an indicator of weakening intelligence. These are manifest in many ways. Individually, the small inconveniences or inefficiencies he describes may just be dismissed as part of everyday life. Collectively the impact is striking. To offset the effects of using less capable people, businesses are using standardized routines to reduce errors. The drawback is that a form of paralysis sets in when these people are asked to perform outside their abilities or what they have been trained to do. (2:83-104)

What is taking place is an insidious decline in thinking skills. This is partly due to we ourselves being part of the problem. Also the problem has evolved slowly, making the gradual shift less striking.

Results of a simple problem illustrate the level of thinking fitness young generations possess. When 100 students were asked to solve a problem, of how many buses are needed to transport 1128 soldiers using 36 buses? Only 70 students got the answer mathematically correct 31.33 (31 with a remainder of 12). Of those, only 24 students "rounded up" to 32 buses so the remaining 12 were not left behind. (30:8) Failure to compute the correct answer highlights the basic skills decline. Failure to understand what the answer needed to be indicates a deficiency in reasoning skills.

Reasoning (thinking) skills are drawing much needed attention. Results of 10,000 students taking a critical-thinking test revealed only a one-point difference between the mean scores of sixth-grade students and college freshman. "While our students perform well on tasks that require paraphrasing and literal comprehension, they repeatedly stumble over test items that require inference, analysis or evaluation." (5:445) Nine of eleven reports from the reform studies of the mid-1980s identified the need for reasoning skills curriculum improvements. (6:148-9)

The term thinking skills applies to a wide variety of concepts. Traditionally these have included "critical thinking, inductive and deductive thought, reasoning, problem solving, logic and Socratic method. Reform efforts have added: reflective thought, inquiry, discovery, higher order cognitive processes, learning how to learn, lateral thinking, metacognition, creativity, convergent and divergent thought." (24:64) Rhodes scholar, medical doctor, and educator, Dr. Edward de Bono is an expert in teaching thinking and creativity. He defines thinking as the process wherein intellect acts on experience. (17:3) In his opinion, education programs stress the need to be right all the time. To do this, they dwell on the teaching of facts and information. The development of intellectual skills such as logic and analysis are by-products. (12:108)

Whatever the endeavor--private business or government service--developed thinking skills allow people to build and maintain our economy and way of life. The economic world,

corporations and businesses, sees the need for creativity and innovation in order to maintain an edge. The military has a high demand for tacticians and strategists with initiative and genius. Though called by different names, developed thinking skills are the common denominator.

Many educational systems focus primarily on historical lessons, but fail to put them in perspective. To fully educate someone this way would require exposure to every possible scenario. This would be an impossible task. People trained this way are less equipped to deal with surprises or unknowns. They may know facts but can not apply them. If we compared educating this way with teaching a language, what is done would be the same as only introducing nouns and adjectives while omitting verbs. The verbs (intellect) shape the nouns (experiences) into something useful. An article in the Airpower Journal, "The Operator-Logistician Disconnect" provides a stereotype of the problem. "Logisticians (and some operators) are frequently not prepared to handle fluid operational-level situations because their education and experience have not prepared them to compare the scenario they face to a principle or historical precedent." (45:24) The author described the lack of a "conceptual framework" of thinking skills that results in flexibility, adaptability, and innovation. Dr. de Bono suggests the modern world requires refined thinking skills such as the ability to: generate ideas, perceive, be creative and design. (11:75) Other experts agree.

"The ability to comprehend information through memorization, without mastery of more complex cognitive skills, may have been sufficient during the Industrial Age, but it is not effective in today's work place. Students must be more than walking memory banks if we expect them to apply their knowledge to the many faceted problems that face society about to enter the 21st century." (5:445-6)

How does the American military acquire its thinkers? It hires and trains them. It hires "products of a society that wants recipes and formulas, a modernistic milieu that teaches people what to do, not how to think." (37:70) Those who stand out above the rest will be in very high demand. Given an aging population, the military will face stiffer competition from the corporate world. The military's ability to hire the caliber of people it needs is tied to the economy. Companies increase entry pay levels to attract the people they need to do their jobs. Decreasing military budgets will restrict the ability to compete with the companies. (49:22) The country's founding principles restrict the military from dictating what our education system should produce. To operate within these constraints the military must play a supplemental role--one that educates its people to meet unique requirements. The answer, it appears, is to obtain the best qualified people and train them to the required standard. This will increase education costs and time. It will also be a long term process. Fortunately we like to solve problems.

Americans pride themselves as a nation of problem solvers. They like to say "The difficult takes a day, the impossible a little longer." The scientific method is its means to solve

problems. Educator John Dewey transformed the scientific method into the education structure. The steps are:

1. Recognition of the problem: Suggestion.
2. Analysis of the problem: Intellectualization.
3. Suggestion of possible solutions: Hypothesis.
4. Testing of consequences: Reasoning.
5. Judgment of the selected solution:
Testing the hypothesis by action (24:64).

The scientific method is how Americans prefer to solve problems. It is the basis for many actions of the Joint Chiefs of Staff including staff studies, estimates, and planning actions. Because of its importance, the scientific method should be conducted with great care--sometimes it isn't.

What frequently happens is that the process gets short circuited. Complications arise when decision makers try to isolate the problem from the "real world." They desire well-defined problems, but often they are not. Often symptoms are confronted instead of problems. "A frequent mistake of managers is to rush to generate solutions before they have clearly defined their problem." (27:14) They seek to generate an array of fully thought out alternatives. When decision makers use their experience, there is a preference to use previously successful solutions. Barbara Tuchman, in The March of Folly refers to this as wooden-headedness, ". . .the folly of self-deception. It consists of assessing a situation in terms of preconceived fixed notions while ignoring or rejecting any contrary signs. It is acting according to wish while not allowing oneself to be deflected by the facts." (53:7) If the actual problem is identified, the next breakdown occurs when the

search for alternatives goes down established paths. The first solution that fulfills the minimum requirements of the problem is often used. Stopping at the first workable solution is termed satisficing; further search for optimum solutions comes to a halt.

Senior leaders are routinely asking their people to become more creative. What is it they really want? "When people in positions of authority (parents, teachers, managers, military leaders) say they wish that the people over whom they have authority (children, students, employees, subordinates) could think, they mean that they wish their charges or subordinates were more skillful at accomplishing goals set or at least endorsed, by their superiors. Seldom do they have in mind a concept of thinking that is sufficiently broad to include the questioning of the goals themselves and the authorities that have set them. (3:34) What skills should military thinkers possess?

Today's warfare demands that we educate for a variety of thinking skills. Planners must respond to dynamic situations. The military needs leaders who can recognize objectives, formulate and express commanders' intentions, and use mission orders. Major General Penny M. Smith (USAF, Retired) points out the need for "visionary leadership, innovative strategic planning, and risk taking." (50:16) He also cautions against being led astray by "learning the wrong lessons from history" or becoming "preoccupied" with everyday routines. Marshall de Saxe observed how poorly some military prepare to perform their thinking tasks. "Few men occupy themselves in the higher problems

of war. They pass their lives drilling troops and believe this is the only branch of the military art. When they arrive at the command of armies they are totally ignorant, and in default of knowing what should be done--they do what they know." (51:18)

The various services of the United States military imply or state the need for its people to be thinkers. The Marine Corps makes the most direct statement about the need to think in Fleet Marine Field Manual 1 "Warfighting" (FMFM-1). It flatly states, "The military profession is a thinking profession. . . . An officer's principle weapon is his mind." (59:44,51) The Army recognizes that, "the fluid, compartmented nature of war will place a premium on sound leadership, competent and courageous soldiers, and cohesive, well-trained units. The conditions of combat on the next battlefield will be unforgiving of errors and will demand great skill, imagination, and flexibility of leaders. (45:9,5)

Steve Allen's book Dumbth (2) is invaluable for those who desire to increase their awareness of the problem or wish to effect change. It is the kind of book subordinates and superiors might give to each other hoping each would take certain of the rules to heart. Allen is a student of the human condition. And he provides refreshing insights. His 81 "rules" are ones Americans should consider if they are to reverse the downward trend and think smarter. Each rule is supported with one to twenty pages of text. Some might dismiss the rules as stating the obvious or, being simply common sense. They should consider the rules in the context of General W. T. Sherman's definition of

strategy: "Common sense applied to the art of war." The following rules (2:137-288) are particularly useful for military leaders:

- Beware of rushing to judgment
- Beware of falling in love with your first answer
- Beware of the erroneous assumption
- Beware of making predictions on the strength of insufficient evidence
- Examine your "superstitions"
- Recognize that you have personal prejudices
- Beware of prefabricated answers
- Be aware your opinions, assumptions, and beliefs are often affected by peer-group pressure
- Beware of thinking that because you are bright and quick-minded, you therefore reason well
- Concede ignorance when you are ignorant
- Beware of the search for the "right answer"
- Don't be afraid to change your mind
- Remember that no two things are ever the same
- Remember that no one thing remains the same for very long

A LOOK AT THE "RULES" IN MILITARY SITUATIONS

As noted above, personal perspectives color information acquisition and judgment. Tuchman's The March of Folly, describes how "follies" are born, ". . . Follies are conditioned by the attitudes and beliefs and policies of the time." (53:20) Going with the first idea that solves the minimum requirements can be an invitation to trouble. Often the initial response is locked on to and defended to an unreasonable level. Tuchman describes the process. First, ". . . mental standstill fixes the principles governing a political problem." Then, ". . . as dissonances and failing function begin to appear, the initial principles rigidify." Thirdly, ". . . pursuit of failure enlarges the damages." (53:383) Adversaries can exploit these tendencies because they lead to predictability. When fighting enemies, we

must be able to generate alternatives.

The quest for alternatives is an ongoing exercise in thinking. The military person who has only one solution still has a problem. A limited number of options increases the chances that the enemy can make the same assessment. He will recognize your actions and thwart, or exploit, them. Sir Liddel Hart cautioned,

"For if the enemy is certain as to your point of aim he has the best possible chance of guarding himself--and blunting your weapon. The absence of an alternative is contrary to the very nature of war. Quoting Bouchet (Napoleon's mentor), 'every campaign ought to have several branches and to have been so well thought out that one or other of the said branches cannot fail of success.'" (36:32)

The leader's need always to be right and the search for "the right answer" are double-edged swords. Some who lead feel they themselves must always have the answers or they will be seen as lacking control. (2:194) The quest to be in control produces a disproportionate sense of urgency. Perfection skews the perceptions of which questions should be answered. Is it good enough? Should the time be taken to make it be better? Does this project need the best effort? The tradeoffs gained by providing just a timely response compared to the quality derived from providing the best response must be resolved. When engaged with an enemy, especially when employing maneuver strategy, there is a payoff to get inside the opponent's decision loop. Satisfactory answers in time are infinitely better than the best one too late. But if the "timely" actions are suboptimum and eventually lead to defeat, then they were not the right ones.

How can military leaders be schooled to make the right choices?

So long as the nation's education system fails to furnish the caliber of thinkers the military needs, it must provide its own instruction. The Panel on Military Education of the One Hundredth Congress, (Skelton Report) has defined what the end product should be--strategic thinkers. In the committee's words, "Development of officers who can think strategically is as vitally important to U. S. security as effective weapons systems and adequate supplies of munitions." (51:23)

It is important to understand that thinkers who are good at one level are not necessarily good at other levels. Different mindsets are required at the different levels. The Army in its "Operations" manual, FM 100-5 provides some insight: "The principles of war apply equally to strategy, operational art, and tactics, they apply differently to each level of war." (54:9)

Tactical thinkers need to focus on the how element. "How" thinking is closer to the scientific mindset. The concerns are efficiencies. With these resources, am I doing the best I can? These types of problems are better handled by individuals who view problems in an ordered, or rational, manner.

To think strategically, to see the big picture, requires diversity in conceptualization. Strategic thinkers need to determine what is the most effective course of action. For them, problems are often less well-defined. Functioning at the strategic level is more of an art form. Major R. C. Harlan touched on both modes in his Air University Review article (31:82), "Arts and the Man."

"Strategic thinking requires the connection of diverse but interrelated issues into a systematic pattern. The purely rational man would be an acceptable bureaucrat but a miserable strategist, too plodding to keep up with rapid developments. The purely creative man would be too flaky to execute his plans. The strategists who stand out in history are those with both faculties in abundance." (31:84)

Good operational-level thinkers can integrate and balance the attributes of the other levels. Col Wayne A. Possehl in his article "To Fly and Fight: At the Operational Level," says "Thinking and planning at the operational level is more than reporting enemy movement--it is divining intentions. It is more than counting bombers and tanks--it is figuring out how to stop them, whether by destruction, isolation, or starvation." (45:26)

Some military organizations develop their strategic and operational thinkers by using a building block approach. They assume that good tacticians become good operational artists who finally become good strategists. Such may not be the case because of the different mindsets needed. As a result, those who would make excellent strategists may never clear the earlier hurdles. Or those who can function superbly at earlier levels fail at higher levels. Moltke the younger is a good example of the former and General George B. McClellan the latter.

How can the military prepare the people it will need? Recognizing thinking deficiencies is the first step in curing them. Historical and personal examples should be the basis of hypothetical question: Would refined thinking skills have yielded better results? Future strategists, and their strategies, should consider the possibility of the declining

thinking skills in the people who will carry out their orders.

The general consensus among business and military leaders is that fewer of their people possess full sets of "thinking tools" or see the need to improve what they have. They are comfortable with and use what works for them. Equipped with only a limited repertoire of tools (intellectual skills), they approach every situation using their favorite one. The need to have an assortment of tools is not always obvious. Not every project requires a hammer. Those who possess full sets of thinking tools and use them are highly successful.

Until the military receives people educated to the standards it requires, it may have to revert to alternate strategies. One might be to formalize a mentor system to help develop leaders. Where some form of mentoring takes place already, it usually is done by people who tend to pick out clones of themselves rather than an assortment of personalities. This happens because they are most comfortable with people who see things as they do. A drawback is that like thinking proteges are less likely to raise questions from a different point of view. Often the leaders share their successes while withholding failures. As a result, the followers are deprived of a set of valuable lessons--what did not work. Finally, sometimes a portion of the mentored choose to separate from the service and whatever knowledge was passed on is lost. An overhauled mentoring system should take advantage of the Socratic method, active questioning, with all who aspire to leadership positions.

An impersonal way to replace some of the missing thinking

skills is via computer software. A program called IdeaFisher " . . . gives users the ability to explore their imaginations and helps them call up facts or images they might not have remembered otherwise." In tests, groups were able to generate almost 50 percent more ideas than others using random brainstorming techniques. The disadvantages of the program are a relatively powerful computer is needed (MS-DOS 3.1 or higher, 640K of RAM and 14 megabytes of hard-disk storage), and it is expensive (\$1,795). (23:51) To meet the rigors of military requirements, a more adaptable, field-transportable model would be needed.

A more useful solution may be upgrading the level of thinking instruction in the military's education structure. There are numerous thinking skills programs to choose from on the market today. Drs. Deborah Burns and Richard Olenchak reviewed over a dozen programs in their article "A Buyer's Guide to Thinking Skills Programs" and identified factors educators should consider when acquiring such programs. (5:445-448)

Cognitive Research Trust, or CoRT, is an excellent example of some already developed course material. The CoRT program comes in six sections. (22:707-8) The lessons are geared to develop a general set of tools to recognize and work thinking problems. The program has been used with people whose IQs range from below 70 to over 140. Positive results were seen in all. CoRT was initially designed for a target audience of 11- and 12-year-olds but it can easily be adapted for adult audiences. Each section has numerous exercises and examples to reinforce a specific concept. CoRT 1 increases breadth when looking at problems.

For example, here are some of the CoRT 1 tools:

- AGO - Aims, Goals and Objectives helps
identify the problem to be worked
- FIP - First Important Priorities
- CAF - Consider All Factors
- OPV - Others Points of View
- C&S - Consequence and Sequel
- PMI - Plus, Minus, and Interesting
- APC - Alternatives, Possibilities and Choices

To show how the CoRT 1 tools could benefit a strategic thinker, some of the tools are compared to Philip A. Crowl's, "The Strategist's Short Catechism: Six Questions without Answers." Each of Crowl's questions are followed by the appropriate CoRT 1 tool(s). (10:1-14)

1. What is it about? (AGO)
 2. Is the national military strategy tailored to meet the national political objectives? (AGO,OPV,C&S)
 3. What are the limits of military power? (PMI,OPV)
 4. What are the alternatives? (APC)
 5. How strong is my home front? (CAF,OPV)
 6. Does today's strategy overlook points of difference and exaggerate points of likeness between past and present? (PMI,C&S)
- Extra credit. What have I overlooked? (APC)

Once the breadth unit of CoRT is taught, the others can be taught individually or in combination. An advantage here is the thinking skills are honed for specific tasks. If predominantly creative thinking is needed, the CoRT 4 (Creativity) lessons would be taught. For people who work on projects, after the introductory material is covered, CoRT 2 (Organization) and CoRT 6 (Action) would be taught. Major corporations such as IBM, Shell, General Dynamics have recognized the effectiveness

of teaching these thinking skills. The Center For Creative Leadership provides training to implement CoRT programs.

There is no guarantee CoRT trained people will use the tools they acquire. This, however, is a different problem from not having anyone trained. CoRT's creator speaks of teaching the skill to four levels. The first level creates a general awareness of thinking as a skill. It would be taught at basic military training. Level 2 is slightly structured and introduces the tools; it would be taught at precommissioning programs. Level 3 helps provide direction or purpose for the thinking. This would be taught at follow-on leadership courses such as Squadron Officer School or NCO academies. People trained to Level 4 are fluent in the use of the tools and help facilitate others' use. It would be covered during advanced schools such as Senior NCO academies, Air Command and Staff College, or Air War College.

In the end, military leaders who recognize the need to develop their people must go beyond ensuring that they know how to brainstorm. Their people must be able to direct their thinking for various tasks. To some, this may suggest telling people what to think, or brainwashing. In reality it is quite the opposite. The difference was explained by Dr. de Bono as he was introducing his methods for teaching thinking skills in Venezuela. When a journalist said he was teaching brainwashing, he explained it this way. The questioner was wearing glasses and de Bono asked the purpose of the glasses. The response was, "To help me see better." He replied the same was true for the

improvements to thinking he was suggesting. (22:705)

When people become better thinkers, they bring the best they are capable of to work problems. Think about your own experiences and consider the possibility that thinking deficiencies exist. Have the intellectual honesty to admit it if you yourself have committed some thinking errors. If you believe you possess top-level thinking skills and do not to improve--watch out. If you use many thinking tools, share them with others.

As the military continues to serve the nation, it will face new and more complex problems. Its thinkers do not require special thinking skills, but they do require well-developed ones. The military must train them to the needed depth and level until the education system is able to do the job. As a matter of national survival, we must improve our thinking skills.

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